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UNITED STATES DEPARTMENT OF AGRICULTURE

FACT SHEET

FOR PART-TIME
FARMERS AND
GARDENERS

UNITED STATES
DEPARTMENT
OF AGRICULTURE

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Growing Corn

Growing corn throughout the United States is dependent on hybrid varieties. New higher yielding single-cross corn hybrids have generally replaced older hybrids. A serious disease outbreak in 1970 hastened the changeover to these new hybrids, which have better stalk strength and pest resistance.

More extensive and effective use of fertilizers has also led to increased corn yields. The use of improved combines and dryers has played an important role in corn production.

Selecting Seed

The type of corn hybrid you should use depends on local growing conditions. A hybrid that does well in the central Corn Belt may mature too late for growing farther north or may not be able to withstand insects and diseases in Alabama or dry weather in Oklahoma.

Preparing The Soil

Fertilizing. You can apply fertilizer in any one of three ways: (1) near the row at planting time; (2) broadcast and plowed under or disked in before planting; and (3) in a band either before or after the plant emerges.

Here are some general fertilizer recommendations:

a. For light sand soils of the Gulf Coastal Plains, use 800 to 900 pounds per acre (912 to 1,026 kg/ha) of 10-10-10 fertilizer broadcast, and side dress (inject in the soil between the rows) with 70 to 80 pounds per acre (80 to 91 kg/ha) of actual nitrogen. This is equivalent to 20 pounds per 1,000 square feet (9 kg per 90 m²) and 1/2 pound per 100 feet of rows (.23 kg per 30 m of row).

b. For average fertility soils of the Northeast, use 650 to 785 pounds per acre (741 to 895 kg/ha) of 5-10-5 fertilizer broadcast and 400 pounds per acre (456 kg/ha) near the row at planting. This is equivalent to 15 to 18 pounds per 1,000 square feet (7 to 8 kg per 90 m²) and 3 pounds per 100 feet of row (1.35 kg per 30 m of row).

c. For fertile soils of the Midwest, Pacific Northwest, and West, use 450 to 700 pounds per acre (513 to 800 kg/ha) of 5-10-5 fertilizer placed in a band near the row at planting. This is equivalent to 3 to 5 pounds per 100 feet of row (1.35 kg to 2.25 kg per 30 m of row).

Tilling. Two general systems of tillage are used for corn production:

(1) Conventional tilling — Some combination of disking, plowing, and harrowing is used to prepare a firm, finely pulverized seedbed. This system tends to control weeds and to produce good stands and high yields. Some disadvantages caused by the many trips over the field are overcompaction of the soil and rapid surface sealing of the soil, resulting in rain runoff and erosion.



Corn planted in an old orchard grass pasture. Conservation tilling left the plant residue between seedbeds undisturbed. This system of tilling reduces soil erosion and conserves soil moisture.

(2) Conservation tilling — Conservation tilling requires fewer trips over the field and leaves plant residue on the soil surface to protect against soil erosion. The various types of conservation tilling (no-till or reduced tilling) work best with medium and coarse-textured soils. Advantages include reduction of soil erosion, conservation of soil moisture, and reduced machine operations.

Fields can be prepared for planting with underground sweeps, chisels, disks, or rotary-type implements which loosen the soil. Corn can be planted with no prior tillage with specially designed planters.

Corn yields from conservation-tilled fields may be as good as or better than those from conventionally tilled fields if you are careful to obtain similar stands in the rougher seedbed.

Additional Information

For the latest information on selecting hybrid seed, fertilizing and tilling your soil, and combating insects and diseases, contact your local Cooperative Extension agent. Information on taking soil samples is also available from your local agent or from your Soil Conservation Office.

Planting

Time. Most farmers plant corn 10 days to 2 weeks before the last killing frost. If corn is planted 1 to 2 weeks later than this period in the North, the growing season will not be long enough. In the South, a delay of 2 to 3 weeks in planting usually is not serious. Generally, early planting results in the best grain yields. However, corn may be planted 5 to 6 weeks after the last frost with only a moderate reduction in yield.

Rate. The number of plants can vary from a low of 8,000 to a high of 30,000 plants per acre. Seeding rate is influenced by the type of soil you have, how fertile it is, how much water the corn gets, what the weather is like, and the type of hybrid you use.

Plant a greater number of seeds of early hybrids than of full-season hybrids. Plant more seeds for corn intended for silage than for grain. You can estimate field stands by using the table, "How To Estimate A Stand of Corn."

Controlling Weeds

Cultivating. The main purpose of cultivating is to kill weeds. You can kill weeds most easily by cultivating when they are small — even better, cultivate before the weeds appear.

There are two methods:

Shallow cultivation — This method is used when corn

plants are small (less than 6 inches tall) and weed seedlings are just emerging. The cultivator disturbs the soil surface and destroys the weed seedlings while doing little damage to the more rugged corn seedlings. Shallow cultivation is most effective when the ground is lightly crusted and when followed by a few hours of good drying conditions. The most commonly used shallow cultivation tool is the rotary hoe. Other effective tools are the spike-tooth harrow and spring-tined weeder.

Row cultivation — This method is used to cut loose and destroy weeds between the rows and to move enough soil to bury small weeds in the corn rows. Row cultivation can be used from the time it is possible to see the corn rows until the corn is between 2 and 3 feet tall. Cultivate just deeply enough to kill weeds — usually not more than 2 inches. When the corn is small, shields should be used on the cultivator to keep the corn from being buried.

The shovel or sweep cultivator is the most common type of row crop cultivator. Rolling, disk, and powered rotary cultivators are also used and work well with conservation tillage because they operate in plant residue without clogging.

Using herbicides. Many herbicides are available for control of weeds in corn. Because herbicides differ in their ability to control different weeds, it is necessary to carefully select the proper herbicides for your situation. It is important that herbicides be handled carefully and applied only according to instructions on the herbicide label.

If you are using no-till planting, you can first apply contact herbicides to burn down weeds.

Residual herbicides may be applied to the soil to control weeds as they emerge. These herbicides may be ap-

How to Estimate a Stand of Corn

| If the average distance ¹ between plants set in rows spaced apart by — | | | Then the number of plants per acre will be— |
|--|----------------|----------------|---|
| 30 inches is — | 36 inches is — | 42 inches is — | |
| <i>Inches</i> | <i>Inches</i> | <i>Inches</i> | <i>Thousands</i> |
| 26 | 21 ¾ | 18 ¾ | 8 |
| 21 | 18 | 15 | 10 |
| 17 ½ | 14 ½ | 12 ½ | 12 |
| 15 | 12 ½ | 10 ¾ | 14 |
| 13 | 11 | 9 ¾ | 16 |
| 11 ½ | 9 ¾ | 8 ¾ | 18 |
| 10 ½ | 8 ¾ | 7 ½ | 20 |
| 9 ½ | 8 | 6 ¾ | 22 |
| 8 ¾ | 7 ¾ | 6 ¼ | 24 |

¹To the nearest ¼ inch.

plied before planting (preplant application), incorporated into the soil with tillage before planting (preplant incorporated application), or applied after planting but before corn emergence (preemergence application). Preemergence applications are usually more effective when applied as soon after planting as possible.

You can also use postemergence herbicides. *Selective* postemergence herbicides applied to both the corn and the weeds will kill only the weeds. *Nonselective* herbicides, when applied postemergence, must be applied with equipment that will direct the herbicide so that it contacts only the weeds.

Precautions

Some herbicides can be hazardous to people and animals. Use herbicides only when needed and handle them with care. Follow the directions and heed all precautions on the labels.

Keep herbicides in closed, well-labeled containers in a dry place. Store them where they will not contaminate food or feed, and where children and pets cannot reach them.

Avoid spilling herbicide on your skin, and keep it out of your eyes, nose, and mouth. If you spill any on your skin, wash it off with soap and water.

Do not inhale herbicide dusts or mists.

Do not contaminate lakes, streams, or ponds with herbicide. Do not clean spraying equipment or dump excess spray material near such water.

Avoid drift of herbicide to nearby crops.

Dispose of empty herbicide containers at a sanitary landfill dump, or bury them at least 18 inches deep in a level, isolated place where they will not contaminate water supplies.

Insects and Diseases

Many insects and many kinds of diseases may damage corn. Some common diseases include: root and stalk rot, leaf blight or spots, and ear rot. Some common pests include: rootworms, wireworms, stalk borers, armyworms, and earworms. A corn plant has a chance of escaping with less injury from these pests if it is adapted to its environment and well fertilized.

Harvesting the Crop

Ninety percent of corn is harvested for grain. The remainder of the crop is harvested mostly for silage; occasionally it is cut up and fed green.

Grain. Most farmers use a combine or picker-sheller, which picks, husks, shells, and delivers the corn into hoppers or trailing wagons all in one operation. Farmers with small acreages may be able to have their crop custom harvested or buy used equipment.

The sooner corn is picked after it is mature, the lower is the harvesting loss. Corn picked early is too damp for safe storage. You can determine the moisture content of corn by using a moisture meter, which your Extension agent or feed processor can usually provide.

Loss by shelling can be less than 2 percent when grain moisture is 22 percent or more. Loss increases as the grain moisture decreases, and may be 9 to 13 percent when the crop remains in the field until moisture content is below 15 percent.

Silage. Silage makes the most efficient use of the corn crop. An acre of corn as silage has about one-third more feeding value for beef cattle than an acre harvested for grain. Corn should be harvested for silage when it reaches full maturity, or "black layer stage" (when the kernel is removed from the cob, the attachment point is black; the corn is immature if the attachment point is white). Maturity occurs approximately 55 to 60 days after 75 percent of the corn is silked. This is the point when maximum dryweight of the grain has been reached.

Cropping Practices

You can grow corn year after year on the same land or you can rotate it with other crops. The choice depends on the condition of your soil and what you do to keep it in condition. You may want to grow corn nearly continuously on level or slightly rolling permeable soils. On steep soils, where erosion is a problem, you should rotate with low forage crops, such as tall fescue and white clover.

To decide on the way to crop corn for a particular soil, consider erosion, fertility, structure, organic matter, and drainage of the soil in addition to the need for weed, insect, and disease control.

Good management includes using enough fertilizer, returning crop residues to the soil, and avoiding too much tilling. Cultural practices and chemicals can usually control weeds, insects, and diseases in corn, whether it is grown continuously or in rotation.

To make nitrogen available to the corn, use rotations with short periods of legumes and corn; for example: corn/small grain/legume meadow, or corn/corn/small grain/legume meadow. You may also use legume green-manure crops as a source of nitrogen.

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